



Owner/Operator Manual

4-Cycle Trimmer/ Brush Cutter

- Safety
- Assembly
- Operation
- Maintenance

Models

TB4000 – 26cc Straight Shaft



Introduction

THANK YOU

Thank you for buying this quality product. This modern outdoor power tool will provide many hours of useful service. You will find it to be a great labor-saving device. This operator's manual provides you with easy-to-understand operating instructions. Read the whole manual and follow all the instructions to keep your new outdoor power tool in top operating condition.

PRODUCT REFERENCES, ILLUSTRATIONS AND SPECIFICATIONS

All information, illustrations and specifications in this manual are based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice.

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Contents of Carton

- Model TB4000 Trimmer/Brush Cutter
- △ Large Bump Head Cutting Attachment
- △ 4-Tooth Brush Blade
- △ J-Handle and Hardware
- Cutting Attachment Shield with Hardware
- Shoulder Harness
- Locking Rod Tool
- Owner/Operator Manual
- Product Registration Card
- Bottle of 4-Cycle Oil
- △ This item will either be installed on the unit or in the hardware pack

SERVICE INFORMATION

Service on this unit both within and after the warranty period should be performed only by an authorized and approved service dealer.

Dial:

- **1-800-345-8746** for authorized service dealers in the United States

Or

- **1-800-668-1238** in Canada to obtain the listing of the authorized service dealer nearest you.

DO NOT RETURN THE UNIT TO THE RETAILER.

NOTE: PROOF OF PURCHASE WILL BE REQUIRED FOR WARRANTY SERVICE.

Make sure this manual is carefully read and understood before starting or operating this equipment.

THIS PRODUCT IS COVERED BY ONE OR MORE US PATENTS, OTHER PATENTS PENDING.



WARNING:

Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to State of California to cause cancer and birth defects or other reproductive harm.

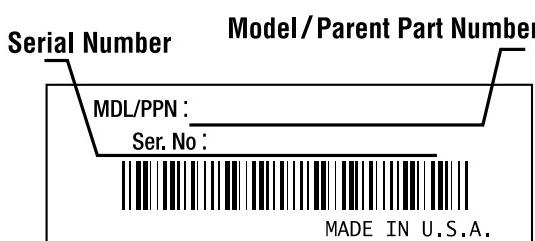
SPARK ARRESTER INFORMATION

NOTE: For users on U.S. Forest Land and in the states of California, Maine, Oregon and Washington. All U.S. Forest Land and the state of California (Public Resources Codes 4442 and 4443), Oregon and Washington require, by law that certain internal combustion engines operated on forest brush and/or grass-covered areas be equipped with a spark arrestor, maintained in effective working order, or the engine be constructed, equipped and maintained for the prevention of fire. Check with your state or local authorities for regulations pertaining to these requirements. Failure to follow these requirements could subject you to liability or a fine. **This unit is factory equipped with a spark arrestor.** If it requires replacement, ask your LOCAL SERVICE dealer to install the Accessory Part #182153 Spark Arrestor Kit.

Identification Numbers

Before you start assembling your new equipment, please locate the model plate on the unit and copy the information from it to the space provided below. The information on the model plate is very important if you need help from our Customer Support Department or an authorized dealer.

- You can locate the model number on the shaft housing of the unit next to the On/Off Stop Control Switch. A sample model plate is explained below. For future reference, please copy the model number and the serial number of the equipment in the space below.



Copy the model / parent part number here: _____

Copy the serial number here: _____

Section 1

Safety

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols, and their explanations, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

SYMBOL MEANING



SAFETY ALERT SYMBOL: Indicates danger, warning, or caution. Attention is required in order to avoid serious personal injury. May be used in conjunction with other symbols or pictographs.

NOTE: Advises you of information or instructions vital to the operation or maintenance of the equipment.



DANGER

Failure to obey a safety warning will result in serious injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock, and personal injury.



WARNING

Failure to obey a safety warning can result in injury to yourself and others. Always follow the safety precautions to reduce the risk of fire, electric shock, and personal injury.



CAUTION

Failure to obey a safety warning may result in property damage or personal injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock, and personal injury.

• IMPORTANT SAFETY INFORMATION •

READ ALL INSTRUCTIONS

BEFORE OPERATING

- Read the instructions carefully. Be familiar with the controls and proper use of the unit.
- Do not operate this unit when tired, ill, or under the influence of alcohol, drugs, or medication.
- Children and teens under the age of 15 must not use the unit, except for teens guided by an adult.
- Inspect the unit before use. Replace damaged parts. Check for fuel leaks. Make sure all fasteners are in place and secure. Replace cutting attachment parts that are cracked, chipped, or damaged in any way. Make sure the cutting attachment is properly installed and securely fastened. Be sure the cutting attachment shield is properly attached, and positioned as recommended. Failure to do so can result in personal injury to the operator and bystanders, as well as damage to the unit.
- Use only 0.095 inch (2.41 mm) diameter genuine manufacturer's replacement line. Never use metal-reinforced line, wire, chain, or rope, etc. These can break off and become a dangerous projectile.
- Be aware of the risk of injury to the head, hands and feet.

- Clear the area to be cut before each use. Remove all objects such as rocks, broken glass, nails, wire, or string which can be thrown or become entangled in the cutting attachment. Clear the area of children, bystanders, and pets. At a minimum, keep all children, bystanders and pets outside a 50 feet (15 m) radius; there still may be a risk to bystanders from thrown objects. Bystanders should wear eye protection. If you are approached, stop the engine and cutting attachment immediately.
- Squeeze the throttle control and check that it returns automatically to the idle position. Make all adjustments or repairs before using unit.

SAFETY WARNINGS FOR GAS TRIMMERS

WARNING: Gasoline is highly flammable, and its vapors can explode if ignited. Take the following precautions:

- Store fuel only in containers specifically designed and approved for the storage of such materials.
- Always stop the engine and allow it to cool before filling the fuel tank. Never remove the cap of the fuel tank, or add fuel, when the engine is hot. Never operate the unit without the fuel cap securely in place. Loosen the fuel tank cap slowly to relieve any pressure in the tank.

- Add fuel in a clean, well-ventilated area outdoors where there are no sparks or flames. Slowly remove the fuel cap only after stopping engine. Do not smoke while fueling or mixing fuel. Wipe up any spilled fuel from the unit immediately.
- Avoid creating a source of ignition for spilled fuel. Do not start the engine until fuel vapors dissipate.
- Move the unit at least 30 feet (9.1 m) from the fueling source and site before starting the engine. Do not smoke, keep sparks and open flames from the area while adding fuel or operating the unit.

WHILE OPERATING

- Never start or run the unit inside a closed room or building. Breathing exhaust fumes can kill. Operate this unit only in a well ventilated area outdoors.
- Wear safety glasses or goggles that are marked as meeting ANSI Z87.1 standards, and ear/hearing protection when operating this unit. Wear a face or dust mask if the operation is dusty.
- Wear heavy, long pants, boots, gloves and a long sleeve shirt. Do not wear loose clothing, jewelry, short pants, sandals or go barefoot. Secure hair above shoulder level.
- The cutting attachment shield must always be in place while operating the unit. Do not operate unit without both trimming lines extended, and the proper line installed. Do not extend the trimming line beyond the length of the shield.
- This unit has a clutch. The cutting attachment remains stationary when the engine is idling. If it does not, have the unit adjusted by an authorized service technician.
- Adjust the J-Handle to your size to provide the best grip.
- Be sure the cutting attachment is not in contact with anything before starting the unit.
- Use the unit only in daylight or good artificial light.
- Avoid accidental starting. Be in the starting position whenever pulling the starter rope. The operator and unit must be in a stable position while starting. See Starting/Stopping Instructions.
- Use the right tool. Only use this tool for the purpose intended.
- Do not overreach. Always keep proper footing and balance.
- Always hold the unit with both hands when operating. Keep a firm grip on both the front and rear handle or grips.
- Keep hands, face, and feet at a distance from all moving parts. Do not touch or try to stop the cutting attachment when it is rotating.

- Do not touch the engine, gear housing or muffler. These parts get extremely hot from operation. When turned off they remain hot for a short time.
- Do not operate the engine faster than the speed needed to cut, trim or edge. Do not run the engine at high speed when not cutting.
- Always stop the engine when cutting is delayed or when walking from one cutting location to another.
- If you strike or become entangled with a foreign object, stop the engine immediately and check for damage. Do not operate before repairing damage. Do not operate the unit with loose or damaged parts.
- Stop and switch the engine to off for maintenance, repair, or for changing the cutting attachment or other attachments.
- Use only genuine manufacturer's replacement parts and accessories for this unit. These are available from your authorized service dealer. Use of any parts or accessories not authorized by the manufacturer could lead to serious injury to the user, or damage to the unit, and void your warranty.
- Keep unit clean of vegetation and other materials. They may become lodged between the cutting attachment and shield.
- To reduce fire hazard, replace faulty muffler and spark arrestor, keep the engine and muffler free from grass, leaves, excessive grease or carbon build up.

WHILE OPERATING WITH CUTTING BLADE

- Read and understand all safety warnings before operating this unit.
- Always use the shoulder harness when using the brush blade accessory.
- Keep the J-handle between the operator and cutting attachment or blade at all times.
- NEVER cut with the cutting blade located over 30 inches (76 cm) or more above the ground level.
- Blade thrust may occur when the spinning blade contacts an object that it does not immediately cut. Blade thrust can be violent enough to cause the unit and/or operator to be propelled in any direction, and possibly lose control of the unit. Blade thrust can occur without warning if the blade snags, stalls or binds. This is more likely to occur in areas where it is difficult to see the material being cut.
- For operation with the brush blade, do not cut anything thicker than 1/2 inch or a violent kickback could occur.
- Do not attempt to touch or stop the blade when it is rotating.
- A coasting blade can cause injury while it continues to spin after the engine is stopped or the throttle trigger is released. Maintain proper control until the blade has completely stopped rotating.

Safety (continued)

- Do not run the unit at high speed when not cutting.
- If you strike or become entangled with a foreign object, stop the engine immediately and check for damage. Have any damage repaired before attempting further operations. Do not operate unit with a bent, damaged or dull blade. Discard blades that are bent, warped, or damaged.
- Do not sharpen the cutting blade. Sharpening the blade can cause the blade tip to break off while in use. This can result in severe personal injury. Replace the blade.
- Do not use the cutting blade for edging or as an edger, severe personal injury to yourself or others can occur. Use the cutting blade only for the purpose as described in this manual.
- Stop the engine IMMEDIATELY if you feel excessive vibration. Vibration is a sign of trouble. Inspect thoroughly for loose nuts, bolts or damage before continuing. Repair or replace affected parts as necessary.

AFTER USE

- Clean cutting blades with a household cleaner to remove any gum buildup. Oil the blade with machine oil to prevent rust.

- Lock up and store the cutting blade in an appropriate area to protect the blade from unauthorized use or damage.

OTHER SAFETY WARNINGS

- Never store the unit, with fuel in the tank, inside a building where fumes may reach an open flame or spark.
- Allow the engine to cool before storing or transporting. Be sure to secure the unit while transporting.
- Store the unit in a dry area, locked up or up high to prevent unauthorized use or damage, out of the reach of children.
- Never douse or squirt the unit with water or any other liquid. Keep handles dry, clean and free from debris. Clean after each use, see **Cleaning and Storage** instructions.
- Keep these instructions. Refer to them often and use them to instruct other users. If you loan someone this unit, also loan them these instructions.

SAVE THESE INSTRUCTIONS

SAFETY AND INTERNATIONAL SYMBOLS

This operator's manual describes safety and international symbols and pictographs that may appear on this product. Read the operator's manual for complete safety, assembly, operating and maintenance and repair information.

SYMBOL



MEANING

• SAFETY ALERT SYMBOL

Indicates danger, warning, or caution. May be used in conjunction with other symbols or pictographs.



• WARNING - READ OPERATOR'S MANUAL

Read the Operator's Manual(s) and follow all warnings and safety instructions. Failure to do so can result in serious injury to the operator and/or bystanders.



• FOR SERVICE INFORMATION, CALL:

USA: 1-800-345-8746
CANADA: 1-800-668-1238



• WEAR EYE AND HEARING PROTECTION

WARNING: Thrown objects and loud noise can cause severe eye injury and hearing loss. Wear eye protection meeting ANSI Z87.1 standards and ear protection when operating this unit.



• KEEP BYSTANDERS AWAY

WARNING: Keep all bystanders, especially children and pets, at least 50 feet (15 m) from the operating area.



• PRIMER BULB

Push primer bulb, fully and slowly, 5 to 7 times.

SYMBOL



MEANING

- **UNLEADED FUEL**

Always use clean, fresh unleaded fuel.



- **OIL**

Refer to operator's manual for the proper type of oil.



- **THROWN OBJECTS AND ROTATING CUTTER CAN CAUSE SEVERE INJURY**

WARNING: Do not operate without the cutting attachment shield in place. Keep away from the rotating cutting attachment.



- **ON/OFF STOP CONTROL**

ON / START / RUN



- **ON/OFF STOP CONTROL**

OFF OR STOP



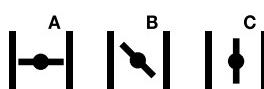
- **HOT SURFACE WARNING**

Do not touch a hot muffler, gear housing or cylinder. You may get burned. These parts get extremely hot from operation. When turned off they remain hot for a short time.



- **SHARP BLADE**

WARNING: Sharp blade on cutting attachment shield. To prevent serious injury, do not touch line cutting blade.



- **CHOKE CONTROL**

A • **FULL** choke position.

B • **PARTIAL** choke position.

C • **RUN** position.



- **BRUSH CUTTERS • Replace dull blade.**

Do not sharpen the cutting blade. Sharpening the blade can cause the blade tip to break off while in use. This can result in severe personal injury.



- **TRIMMER/BRUSH CUTTER SAFETY**

WARNING: Thrown objects and rotating cutter can cause severe injury. Keep bystanders, especially children and pets, at least 50 feet (15 m) away from the cutting area. The cutting attachment shield must be used when using the trimmer cutting attachment.



WARNING: The operation of any power tool can cause foreign objects to be thrown into your eyes. This can lead to severe eye damage. Before commencing power tool operation, always wear safety glasses or goggles that are marked as meeting ANSI Z87.1 standards, and a full face shield when needed.

Section 2

Know Your Unit

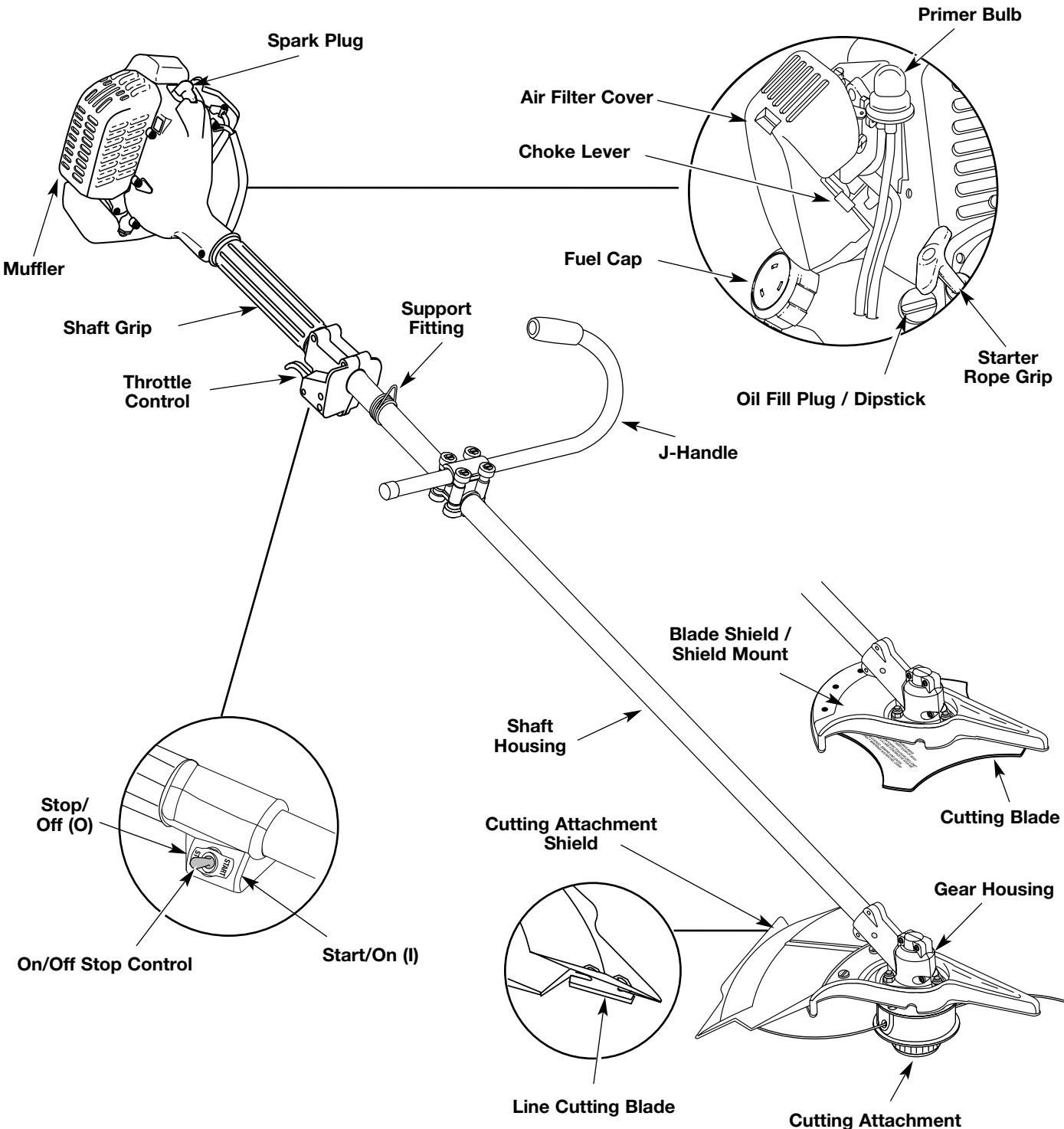
APPLICATIONS

As a trimmer;

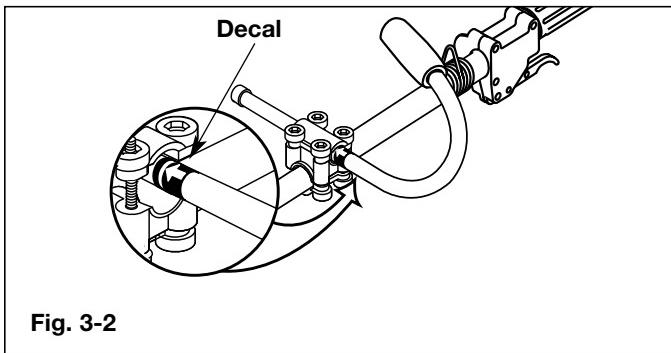
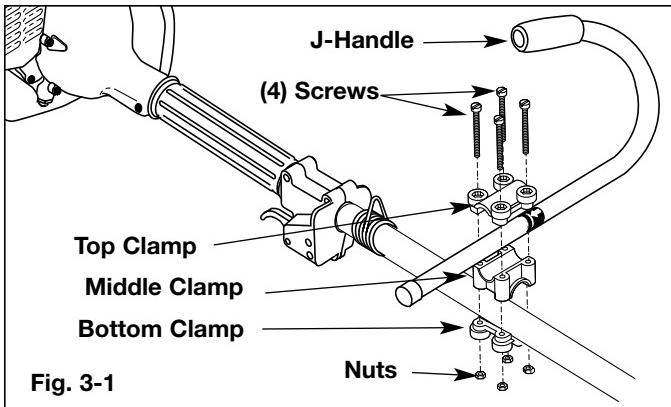
- Cutting grass and light weeds.
- Edging
- Decorative trimming around trees, fences, etc.

As a brush cutter;

- Cutting weeds and light bush of up to 1/2 inch in diameter.



Assembly



On some units, the J-handle may be preinstalled and only require loosening the screws and adjusting the J-handle to the operator. Go to step 6 for adjusting the J-handle if preinstalled.

INSTALLING AND ADJUSTING THE J-HANDLE

Installing

1. Remove the screws, nuts, top and middle clamp pieces that were installed on the J-handle for shipping.
2. Place the J-handle between the top and middle clamp pieces (Fig. 3-1).
3. While holding the three pieces together, install the four (4) screws through the top clamp and into middle clamp.

NOTE: *The holes in the top and middle clamp will line up only when assembled correctly.*

4. Place the clamps and J-handle over the shaft housing and onto the bottom clamp.
5. Hold each hex nut in the bottom clamp recess with a finger. Start screws with a large Phillips screwdriver. Do not tighten until you make the handle adjustment.

Adjusting

6. Loosen the screws so that the J-handle can be easily moved in the clamp assembly. Do not remove the screws or nuts.
7. Slide the J-handle in or out until the arrow/white line on the decal touches the clamp assembly (Fig. 3-2).
8. While holding the unit in the operating position (Fig. 3-3), position the J-handle to the location that provides you the best grip.
9. Tighten the clamp screws evenly, until the J-handle is secure.

Assembly (continued)

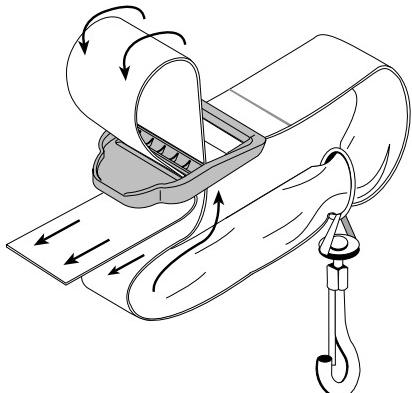


Fig. 3-4

INSTALLING THE HARNESS

WARNING

Always use the shoulder harness when using the cutting blade to avoid serious personal injury.

1. Push the strap through the center of the buckle.
2. Pull the strap over the cross bar and down through the slot in the buckle (Fig. 3-4).
3. Put the harness on over head and onto shoulder. Snap it on to the support fitting (Fig. 3-5).
4. Adjust length to fit the operator's size. Pull tab to lengthen, pull strap to shorten (Fig 3-6).

SUPPORT FITTING

REMOVING AND INSTALLING CUTTING ATTACHMENT SHIELD

Remove the cutting attachment shield when using the unit as a brush cutter.

WARNING

The cutting attachment shield should NOT be installed when operating the unit with a blade. Remove the cutting attachment shield before removing or installing the blade.

Remove the cutting attachment shield from the shield mount by removing the three (3) screws with a flat blade screwdriver (Fig. 3-7). Store parts for future use.

Install the cutting attachment shield when using the unit as a grass trimmer.

WARNING

To avoid serious personal injury, the cutting attachment shield SHALL be in place at all times while operating the unit as a grass trimmer.

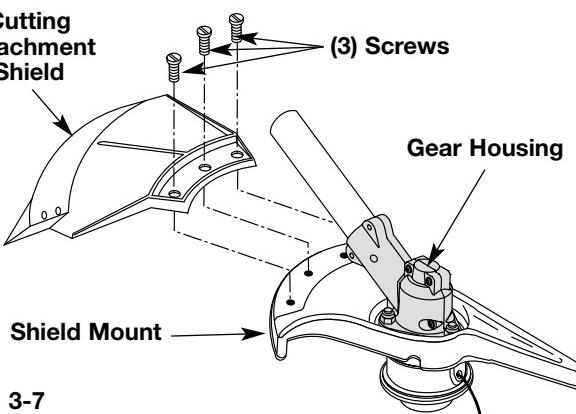


Fig. 3-7

Install the cutting attachment shield on the shield mount by inserting the three (3) screws into the shield mount. Tighten securely with a flat blade screwdriver (Fig. 3-7).

REMOVE THE CUTTING ATTACHMENT AND INSTALL THE CUTTING BLADE

NOTE: To make removing or installing the cutting blade or cutting attachment easier, place the unit on the ground or on a work bench.

Remove the Cutting Attachment Shield

See Section 3, Assembly, Remove and Install Cutting Attachment Shield.

Assembly (continued)

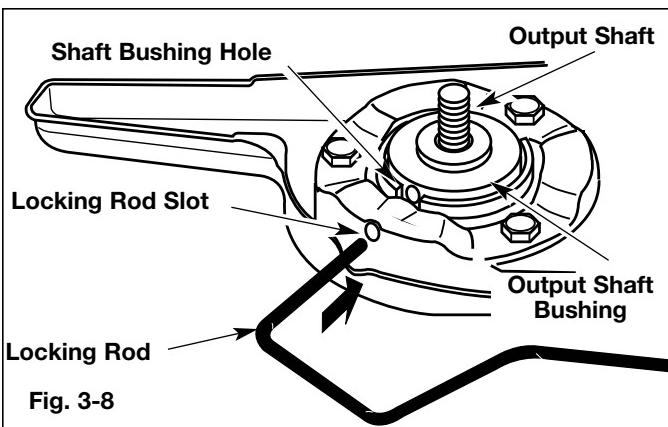


Fig. 3-8

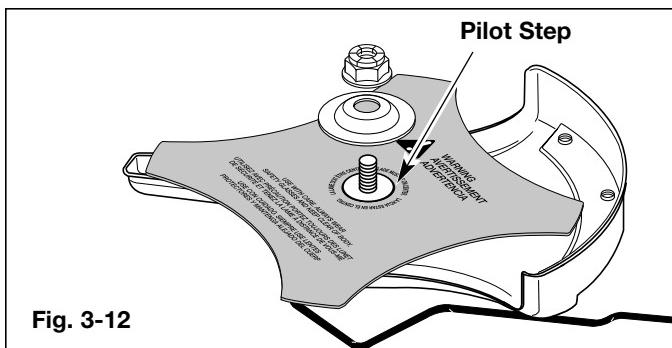


Fig. 3-12

Remove the Cutting Attachment

WARNING

The gear housing gets hot with use and can result in injury to the operator. When the unit is turned off it remains hot for a short time. Do not touch the gear housing until it has cooled.

1. Align the shaft bushing hole with the locking rod slot and insert the locking rod into the shaft bushing hole (Fig. 3-8).
 2. Hold the locking rod in place by grasping it next to the boom of the unit (Fig. 3-9).
 3. While holding the locking rod, remove the cutting attachment by turning it **clockwise** off of the output shaft (Fig. 3-10). Store the cutting attachment for future use.

NOTE: The blade retainer under the cutting attachment will be used when installing the cutting blade.

Install the Cutting Blade

! WARNING

To avoid serious personal injury, always wear gloves while handling or installing the blade.

4. Place the cutting blade on the output shaft bushing (Fig. 3-11).
 5. Make sure that the cutting blade is centered on the pilot step and sitting flat against the output shaft bushing (Fig. 3-12).

! WARNING

If the cutting blade is off-center, the unit will vibrate, and the blade may fly off, which can cause serious personal injury.

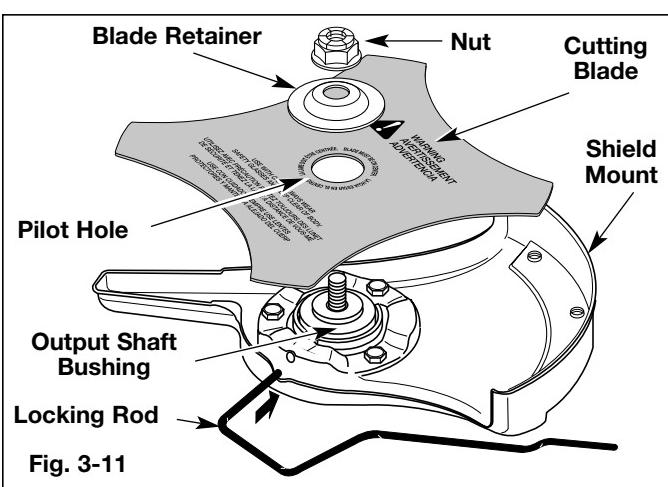


Fig. 3-11

Assembly (continued)

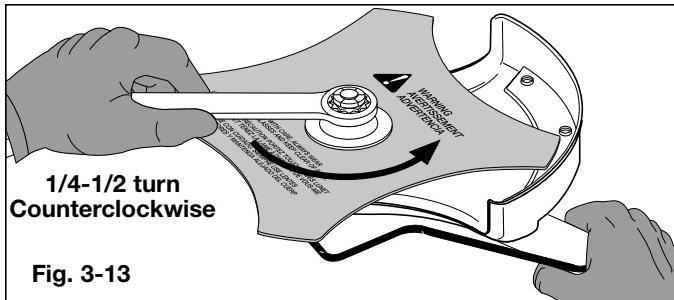


Fig. 3-13

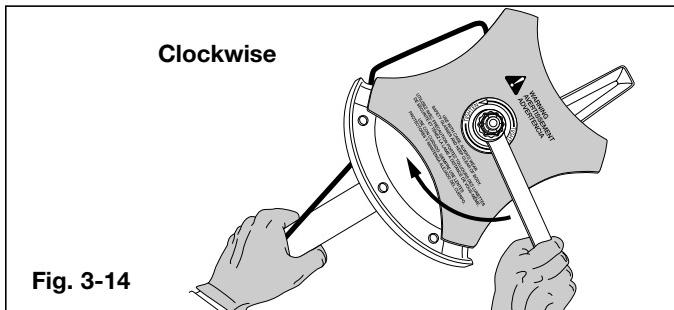


Fig. 3-14

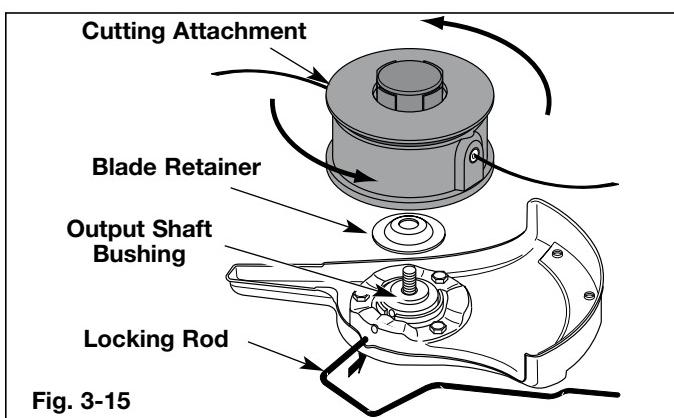


Fig. 3-15

6. Align the shaft bushing hole with the locking rod slot and insert the locking rod into the bushing hole (Fig. 3-8, Pg. 10).
7. Put the blade retainer and nut on the output shaft. Make sure that the blade is installed correctly.
8. Tighten nut counterclockwise against the blade while holding the locking rod;
- If using a torque wrench and an 5/8 inch socket tighten to;
325 - 335 in•lb,
27 - 28 ft•lb,
37 -38 N•m.
- Without a torque wrench, use a 5/8 inch closed-end or socket wrench, turning the nut until the blade retainer is snug against the shaft bushing. Make sure that the blade is installed correctly, then rotate the nut an additional 1/4 to 1/2 turn counterclockwise (Fig. 3-13).
9. Remove the locking rod from the locking rod slot.

! WARNING

To avoid serious personal injury or damage to the unit, do not start or operate this unit with the locking rod in the locking rod slot.

! WARNING

Do not sharpen the cutting blade. Sharpening the blade can cause the blade tip to break off while in use. This can result in severe personal injury. Replace the blade.

REMOVE THE CUTTING BLADE AND INSTALL THE CUTTING ATTACHMENT

Remove the Cutting Blade

! WARNING

To avoid serious personal injury, always wear gloves while handling or installing the blade.

1. Align the shaft bushing hole with the locking rod slot and insert the locking rod into the bushing hole (Fig. 3-8, Pg. 10).
2. Hold the locking rod in place by grasping it next to the boom of the unit (Fig. 3-14).
3. While holding the locking rod, loosen the nut on the blade by turning it clockwise with a 5/8 inch closed-end or socket wrench (Fig. 3-14).
4. Remove the nut, blade retainer, and blade. Store the nut and blade together for future use in a secure place. Store out of reach of children.

Install the Cutting Attachment

5. Align the shaft bushing hole with the locking rod slot and insert the locking rod into the shaft bushing hole. (Fig. 3-8, Pg. 10). Place the blade retainer on the output shaft with the flat surface against the output shaft bushing as shown in Fig. 3-15. Screw the cutting attachment counterclockwise onto the output shaft. Tighten securely.

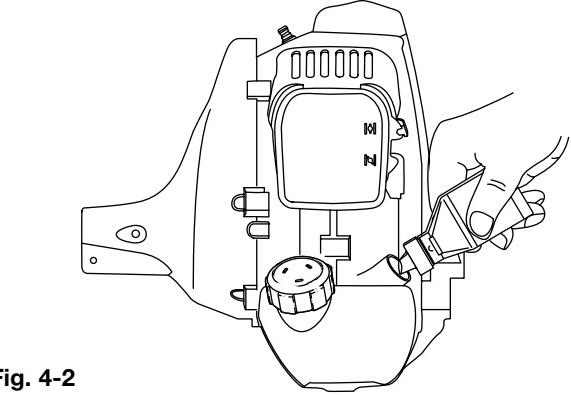
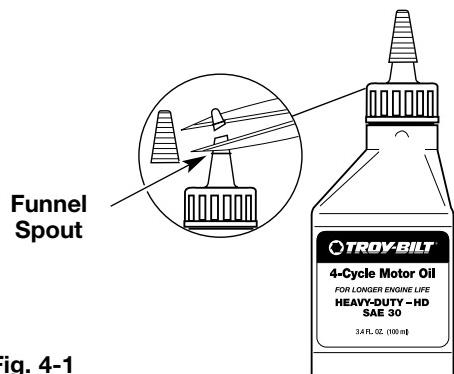
NOTE: The blade retainer must be installed on the output shaft in the position shown for the cutting attachment to work correctly.

6. Remove the locking rod.
7. Install the cutting attachment shield. See **Section 3, Assembly**, Remove and Install Cutting Attachment Shield.

! WARNING

To avoid serious personal injury, the cutting attachment shield SHALL be in place at all times while operating the unit as a grass trimmer.

Oil and Fuel



RECOMMENDED OIL TYPE

Using the proper type and weight of oil in the crankcase is extremely important. Check the oil before each use and change the oil regularly. Failure to use the correct oil, or using dirty oil, can cause premature engine wear and failure.

Use a high-quality SAE 30 weight oil of API (American Petroleum Institute) service class SF, SG, SH.

ADDING OIL TO CRANKCASE – INITIAL USE

NOTE: This unit is shipped without being filled with oil. In order to avoid damage to the unit, put oil in the crankcase before attempting to start unit.

Your unit is supplied with one 3.4 fluid oz. (100 ml.) bottle of SAE 30 SF, SG, SH oil (Fig. 4-1).

NOTE: Save the bottle to measure the correct amount for future oil changes. See Section 6, Maintenance, Checking the Oil Level.

NOTE: Your new 4-Cycle cultivator is shipped for operation in conditions above 40°F (4°C). For cold weather operation, temperatures below 40°F (4°C) use a high-quality SAE 10W30 weight oil of API (American Petroleum Institute) service class SF, SG, SH.

- Unscrew the top of the bottle of oil and remove the paper seal covering the opening. Replace top. Cut the tip off the funnel spout (Fig. 4-1).
- Place the unit on a flat level surface (Fig. 4-4).
- Remove the oil plug / dipstick from the crankcase.
- Pour the entire bottle of oil into the oil fill hole (Fig. 4-2).

NOTE: Never add oil to the fuel or fuel tank.

- Remove tag from oil fill plug / dipstick.
- Wipe up any oil that may have spilled and reinstall the oil fill plug / dipstick.

The importance of checking and maintaining the proper oil level in the crankcase cannot be overemphasized. Check oil before each use and change as specified. See **Section 6, Maintenance, Checking the Oil Level.**

RECOMMENDED FUEL TYPE

Old fuel is the primary reason for the unit not running properly. Be sure to use fresh, clean, unleaded Gasoline.

NOTE: This is a four cycle engine. In order to avoid damage to the unit, do not mix oil with Gasoline.

Definition of Blended Fuels

Today's fuels are often a blend of gasoline and oxygenates such as ethanol, methanol or MTBE (ether). Alcohol-blended fuel absorbs water. As little as 1% water in the fuel can make fuel form acids when stored. Use fresh fuel (less than 60 days old), when using alcohol-blended fuel.

Using Blended Fuels

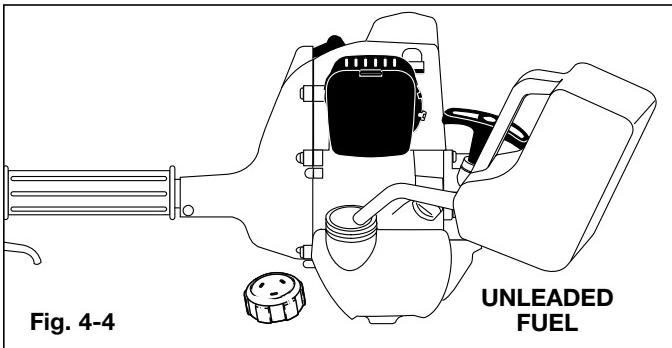
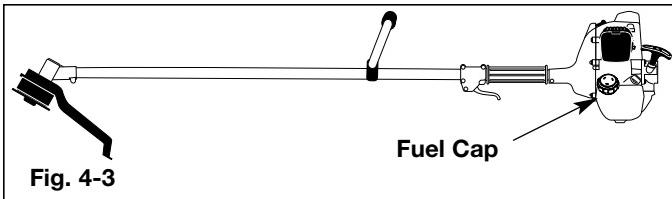
If you choose to use a blended fuel, or its use is unavoidable, follow recommended precautions.

- Always use fresh unleaded gasoline
- Use the fuel additive STA-BIL® or an equivalent.
- Drain tank and run the engine dry before storing unit.

Using Fuel Additives

The use of fuel additives, such as STA-BIL® Gas Stabilizer or an equivalent, will inhibit corrosion and minimize the formation of gum deposits. Using a fuel additive can keep fuel from forming harmful deposits in the carburetor for up to six (6) months. Add 0.8 oz. (23 ml) of fuel additive per gallon of fuel according to the instructions on the container. NEVER add fuel additives directly to the unit's gas tank.

Oil and Fuel (continued)



FUELING UNIT

! WARNING

Gasoline is extremely flammable and its vapors can explode if ignited. To avoid serious personal injury, always stop the engine and allow it to cool before filling the fuel tank. Do not smoke while filling the tank. Keep sparks and open flames away from the area.

1. Remove fuel cap (Fig. 4-3). Remove the tag from the fuel tank neck.

NOTE: Fill or add fuel to the tank only when the unit is in a horizontal position (Fig. 4-3).

! WARNING

Remove fuel cap slowly to avoid injury from gasoline spray.

2. Place spout of gas container into the fill hole on the fuel tank and fill tank(Fig. 4-4).

! WARNING

Add gasoline in a clean, well ventilated area outdoors. Avoid creating a source of ignition for spilt fuel.

NOTE: Do not overfill tank.

3. Wipe up any gasoline that may have spilled
4. Reinstall the fuel cap.

! WARNING

Never operate the unit without the fuel cap securely in place.

5. Move the unit at least 30 ft. (9.1 m) from the fueling source and site before starting the engine.

NOTE: Dispose of the old gasoline in accordance to Federal, State, and Local regulations.

Section 5

Operation

STARTING INSTRUCTIONS

! WARNING

Operate this unit only in a well ventilated area outdoors. Carbon monoxide exhaust fumes can be lethal in a confined area.

! WARNING

Avoid accidental starting. Be in the starting position whenever pulling the starting rope. To avoid serious personal injury, the operator and unit must be in a stable position while starting.

Cold Start – First Start of the Day or Engine Ran Out of Fuel

NOTE: Keep the throttle control depressed at all times until the engine is warmed up.

1. Check oil level in crankcase. See Checking the Oil Level in Maintenance section.
2. Fill the fuel tank with fresh, clean, unleaded fuel. See **Section 4, Oil and Fuel**.
3. Put the On/Off Stop Control in the **START [I]** position (Fig. 5-1).
4. Place the choke lever in the **FULL choke (A)** position (Fig. 5-2).

NOTE: There is a small notch for each position where the the choke lever sets.

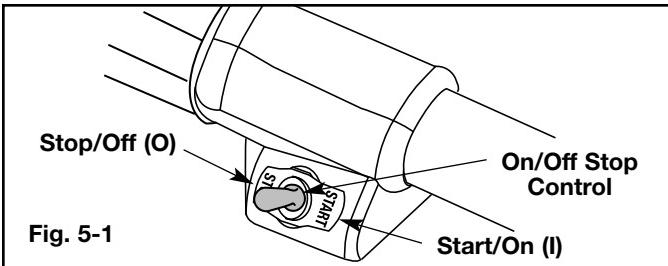


Fig. 5-1

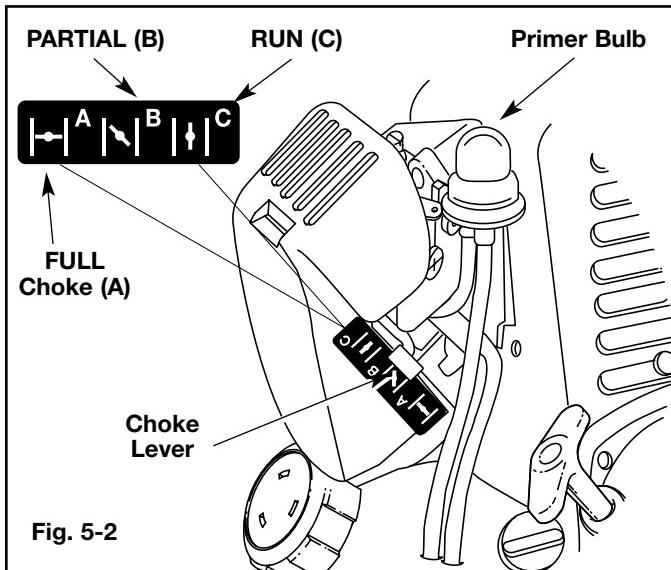


Fig. 5-2

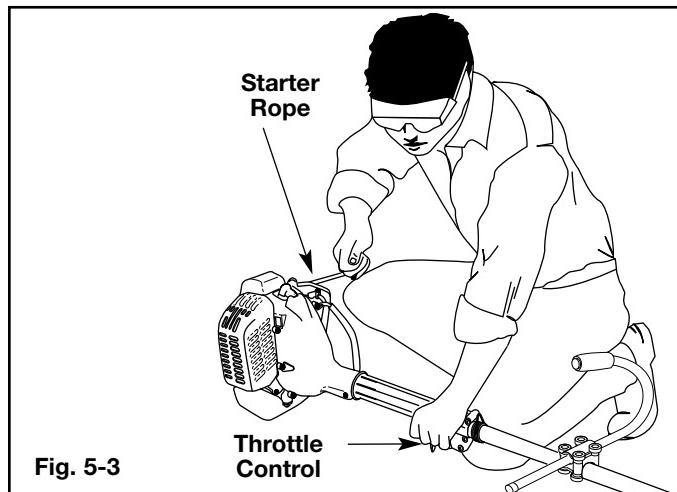


Fig. 5-3

5. Fully press and release the primer bulb slowly 5 to 7 times. Gasoline should be felt and visible in the bulb (Fig. 5-2). If gasoline has not entered the bulb, press three more times, or until it does.
6. Squeeze the throttle control to the wide open (full throttle) position.
7. With the unit in the starting position (Fig. 5-3) pull the starter rope briskly 5 times in the **FULL** choke (**A**) $\downarrow\lrcorner$ position. If the engine attempts to run before the fifth pull, proceed to step 8.
8. Move the choke lever to the **PARTIAL (B)** $\downarrow\lrcorner$ position (Fig. 5-2).

NOTE: The engine will not run in the **FULL** choke (**A**) $\downarrow\lrcorner$ position.

9. Pull the starter rope 1 to 3 pulls until the engine starts. Run for 15-30 seconds. If the unit fails to start return to step 7.
10. Move the choke lever to the **RUN (C)** $\uparrow\lrcorner$ position and run at full throttle for 30 seconds.
11. Release the throttle control to the idle position and begin operation.

NOTE: If the engine does not start using these procedures, repeat steps 5 through 11 using TWO (2) pulls in the **FULL** choke (**A**) $\downarrow\lrcorner$ position.

Engine Re-Start - Warm Engine With Fuel

1. Put the On/Off Stop Control in the **START [I]** position (Fig. 5-1).
2. Move the choke lever to the **PARTIAL (B)** $\downarrow\lrcorner$ position (Fig. 5-2).
3. Squeeze the throttle control to the wide open (full throttle) position.
4. With the unit in the starting position (Fig. 5-3), pull the starter rope briskly until the engine starts.
5. When the engine starts, move the choke lever to the **RUN (C)** $\uparrow\lrcorner$ position, and run at full throttle for 30 seconds.

NOTE: If the engine does not start using the Engine Re-start procedures, revert to the Cold Start procedures.

NOTE: 4-stroke engines, like cars, are able to start in the idle position. As an alternate method, you may want to start your unit in the idle position when the unit is warm. With the On/Off Stop Control in the **START** position and the choke lever in the **RUN (C)** $\uparrow\lrcorner$ position, pull the starter rope briskly. When the engine starts, run at full throttle for 30 seconds. If the unit fails to start or dies, revert to the Engine Re-Start procedure.

STOPPING INSTRUCTIONS

1. Release your hand from the throttle control (Fig. 5-3). Allow the engine to idle.
2. To stop the engine, put the On/Off Stop Control in the **STOP [O]** position (Fig. 5-1).

Operation (continued)

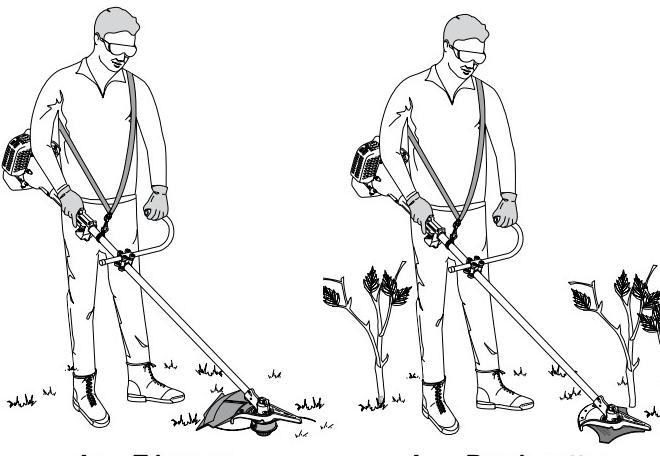


Fig. 5-4

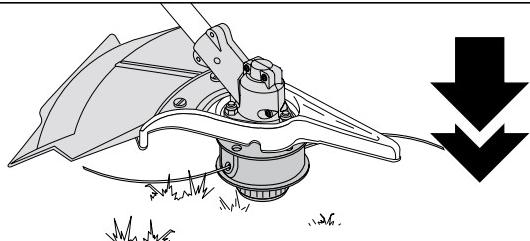


Fig. 5-5

HOLDING THE TRIMMER

! WARNING

Always wear eye, hearing, foot and body protection to reduce the risk of injury when operating this unit.

Before operating the unit, stand in the operating position (Fig. 5-4). Check for the following:

- The operator is wearing eye protection and proper clothing.
- The right arm is slightly bent, and the hand is holding the shaft grip.
- The left arm is straight, and the hand is holding the J-handle.
- The unit is at waist level.
- The cutting attachment is parallel to the ground and easily contacts the vegetation to be cut without the operator having to bend over.

ADJUSTING TRIMMING LINE LENGTH

The Bump Head cutting attachment allows you to release trimming line without stopping the engine. To release more line, lightly tap the cutting attachment on the ground (Fig. 5-5) while operating the trimmer at high speed.

NOTE: Always keep the trimming line fully extended. Line release becomes more difficult as cutting line becomes shorter.

Each time the head is bumped, about 1 inch (25.4 mm) of trimming line is released. A blade in the cutting attachment shield will cut the line to the proper length if excess line is released.

For best results, tap the Bump Head™ on bare ground or hard soil. If line release is attempted in tall grass, the engine may stall. Always keep the trimming line fully extended. Line release becomes more difficult as the cutting line becomes shorter.

NOTE: Do not rest the Bump Head on the ground while the unit is running .

! CAUTION

Do not remove or alter the line cutting blade assembly. Excessive line length will make the clutch overheat. This may lead to serious personal injury or damage to the unit.

Some line breakage will occur from:

- Entanglement with foreign matter
- Normal line fatigue
- Attempting to cut thick, stalky weeds
- Forcing the line into objects such as walls or fence posts

TIPS FOR BEST TRIMMING RESULTS

- Keep the cutting attachment parallel to the ground.
- Do not force the cutting attachment. Allow the tip of the line to do the cutting, especially along walls. Cutting with more than the tip will reduce cutting efficiency and may overload the engine.
- Cut grass over 8 inches (200 mm) by working from top to bottom in small increments to avoid premature line wear or engine drag.
- Cut from left to right whenever possible. Cutting to the right improves the unit's cutting efficiency. Clippings are thrown away from the operator.
- Slowly move the trimmer into and out of the cutting area at the desired height. Move either in a forward-backward or side-to-side motion. Cutting shorter lengths produces the best results.
- Trim only when grass and weeds are dry.
- The life of your cutting line is dependent upon;
 - Following the previous trimming techniques
 - What vegetation is being cut
 - Where it's being cut

For example, the line will wear faster when trimming against a foundation wall as opposed to trimming around a tree.

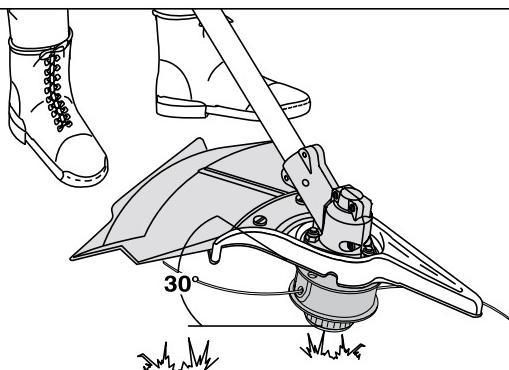


Fig. 5-6

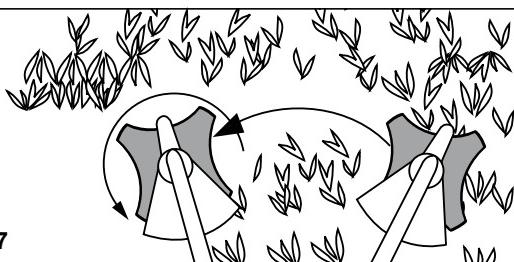


Fig. 5-7

DECORATIVE TRIMMING

Decorative trimming is accomplished by removing all vegetation around trees, posts, fences, etc.

Rotate the whole unit so that the cutting attachment is at a 30° angle to the ground (Fig. 5-6).

USING THE CUTTING BLADE

! WARNING

Always wear eye, hearing, foot, body protection and the strap to reduce the risk of injury when operating this unit.

! WARNING

Do not use the cutting blade for edging or as an edger, severe personal injury to yourself or others can occur.

Before operating the unit with the cutting blade stand in the operating position (Figs. 5-4). Refer to Holding the Trimmer, Pg. 16.

Cutting Blade Operating Tips:

To establish a rhythmic cutting procedure:

- Plant feet firmly, comfortably apart.
- Bring the engine to full throttle before entering the material to be cut. The blade has maximum cutting power at full throttle and is less likely to bind, stall, or cause blade thrust, which can result in serious personal injury to the operator or others.

! WARNING

Blade thrust may occur when the spinning blade contacts an object that it does not immediately cut. Blade thrust can be violent enough to cause the unit and/or operator to be propelled in any direction, and possibly lose control of the unit. Blade thrust can occur without warning if the blade snags, stalls or binds. This is more likely to occur in areas where it is difficult to see the material being cut.

- Cut while swinging the upper part of your body from right to left.
- Always release the throttle trigger and allow the engine to return to idle speed when not cutting.
- When done always unsnap unit from harness before taking harness off.

! WARNING

The blade continues to spin after the engine is turned off. The coasting blade can seriously cut you if accidentally touched.

- Swing the unit in the same direction as the blade spins, which increases the cutting action.
- Move forward to the next area to be cut after the return swing and plant feet again.
- The cutting blade is designed with a second cutting edge, which can be used by removing the blade, turning it upside down, and reinstalling it.

! WARNING

Do not sharpen the cutting blade. Sharpening the blade can cause the blade tip to break off while in use. This can result in severe personal injury to yourself or others. Replace the blade.

To reduce the chance of material wrapping around the blade, follow these steps:

- Cut at full throttle.
- Swing the unit into material to be cut from your right to your left (Fig. 5-7).
- Avoid the material just cut as you make the return swing.

! WARNING

Do not clear away cut material with the engine running or blade turning. To avoid serious personal injury, turn off engine. Allow the blade to stop before removing materials wrapped around the blade shaft.

Section 6

Maintenance

NOTE: Some maintenance procedures may require special tools or skills. If you are unsure about these procedures take your unit to an authorized service dealer.

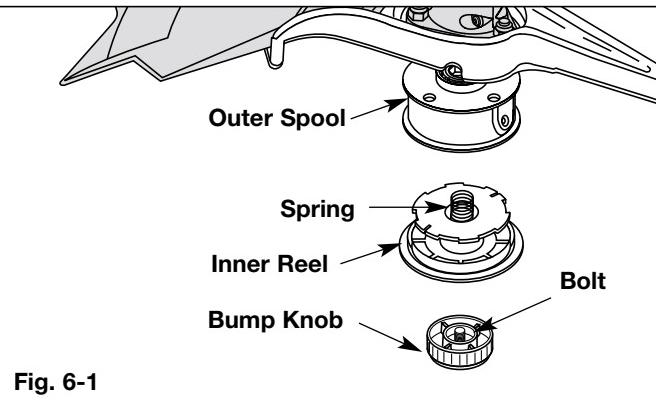
MAINTENANCE SCHEDULE

These required maintenance procedures should be performed at the frequency stated in the table. They should also be included as part of any seasonal tune-up.

! WARNING

To prevent serious injury, never do maintenance or repairs with unit running. Always do maintenance and repairs on a cool unit. Disconnect spark plug wire to ensure the unit will not start.

WHEN	MAINTENANCE NEEDED	GO TO:
Before Starting Engine	Fill fuel tank with fresh unleaded fuel Check oil	Page 14 Page 20
After the First 10 Hours of Use	Change oil	Page 20
Every 10 Hours	Clean and re-oil air filter.	Page 21
Every 25 Hours	Change oil	Page 20
Every 50 Hours	Check rocker arm to valve clearance and adjust as required Check spark plug condition and gap	Page 22-23 Page 23



LINE INSTALLATION

This section covers both Membrane line and standard single line installation.

Always use manufacturer's 0.095 inch (2.41 mm) replacement line. Line other than specified may make the engine overheat or fail.

! WARNING

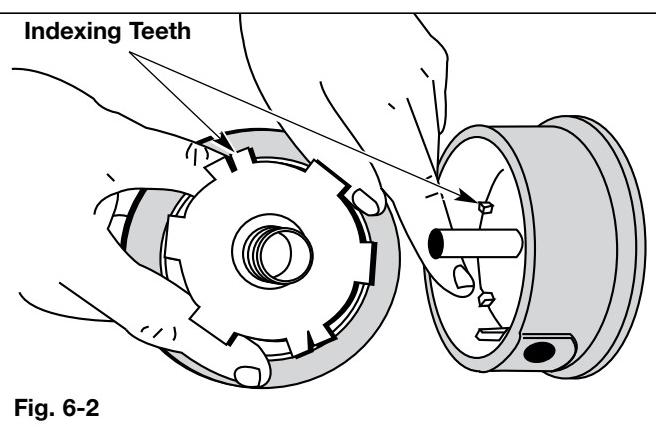
Never use metal-reinforced line, wire, chain, or rope, etc. These can break off and become a dangerous projectile.

There are two methods to replace the trimming line.

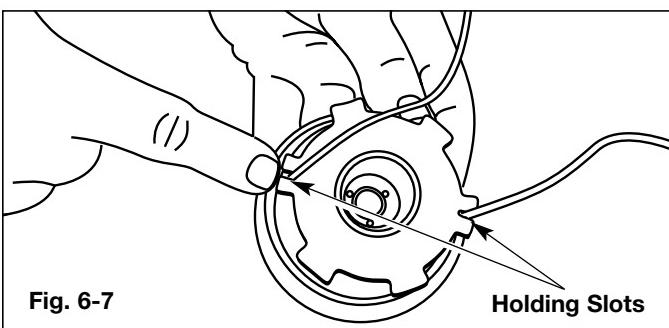
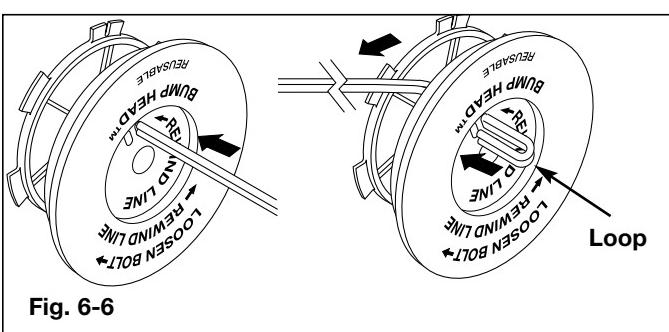
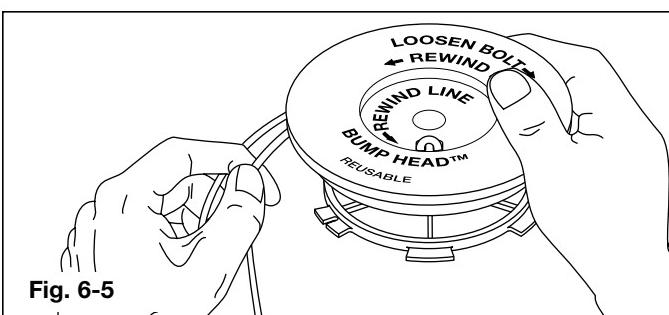
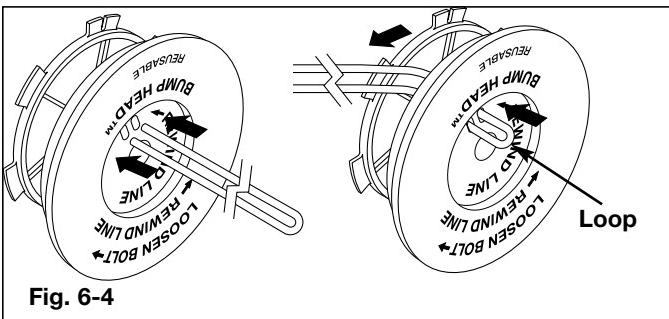
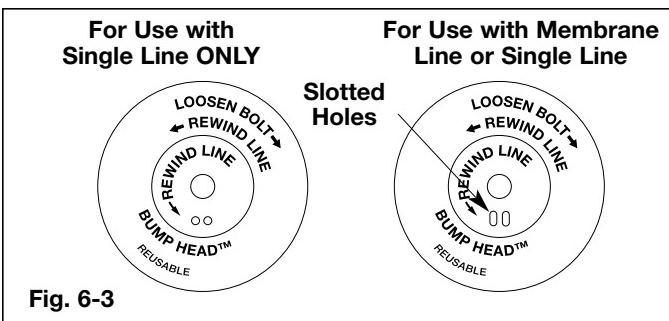
- Wind the inner reel with new line
- Install a prewound inner reel

Winding the Existing Inner Reel

1. Hold the outer spool with one hand and unscrew the Bump Knob clockwise (Fig. 6-1). Inspect the bolt inside the Bump Knob to make sure it moves freely. Replace the Bump Knob if damaged.
2. Remove the inner reel from the outer spool (Fig. 6-1).
3. Remove spring from the inner reel (Fig. 6-1).
4. Use a clean cloth to clean the the inner reel, spring, shaft, and inner surface of the outer spool.



Maintenance (continued)



- Check the indexing teeth on the inner reel and outer spool for wear (Fig. 6-2). If necessary, remove burrs or replace the reel and spool.

NOTE: *Membrane line can only be used with the inner reel with the slotted holes. Single line can be used on either type of inner reel. Use figure 6-3 to identify the inner reel you have.*

NOTE: *Always use the correct line length when installing trimming line on the unit. The line may not release properly if the line is too long.*

Single Line Installation

Go To Step 8 for Membrane Line Installation

- Take approximately 40 feet (12.2 m) of new trimming line, loop it into two equal lengths. Insert each end of the line through one of the two holes in the inner reel (Fig. 6-4). Pull the line through the inner reel so that the loop is as small as possible.
- Wind the lines in tight even layers, onto the reel (Fig. 6-5). Wind the line in the direction indicated on the inner reel. Place your index finger between the two lines to stop the lines from overlapping. Do not overlap the ends of the line. Proceed to step 11.

Membrane Line Installation

- Take approximately 20 feet (6.1 m) of new trimming line. Insert one end of the line through one of the two holes in the inner reel (Fig. 6-6). Pull the line through the inner reel until only about 4 inches is left out.
- Insert the end of the line into the open hole in the inner reel and pull the line tight to make the loop as small as possible (Fig. 6-6).
- Before winding, split the line back about 6 inches.
- Wind the line in tight even layers in the direction indicated on the inner reel.

NOTE: *Failure to wind the line in the direction indicated will cause the cutting attachment to operate incorrectly.*

- Insert the ends of the line into the two holding slots (Fig. 6-7).
- Insert the ends of the line through the eyelets in the outer spool and place inner reel with spring inside the outer spool (Fig. 6-8). Push the inner reel and outer spool together. While holding the inner reel and outer spool, grasp the ends and pull firmly to release the line from the holding slots in the reel.

NOTE: *The spring must be assembled on the inner reel before reassembling the cutting attachment.*

- Hold the inner reel in place and install the Bump Knob by turning counterclockwise. Tighten securely.

Maintenance (continued)

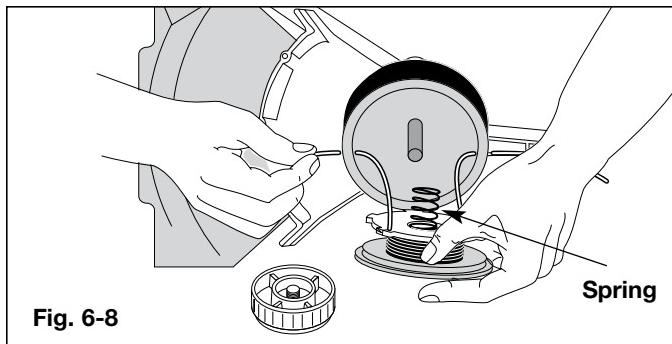


Fig. 6-8

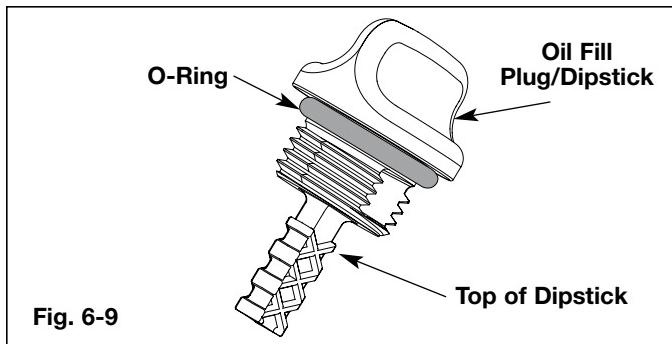


Fig. 6-9

INSTALLING A PREWOUND REEL

1. Hold the outer spool with one hand and unscrew the Bump Knob clockwise (Fig. 6-1, Pg. 18). Inspect the bolt inside the Bump Knob to make sure it moves freely. Replace the Bump Knob if damaged.
2. Remove the old inner reel from the outer spool (Fig. 6-1, Pg. 18).
3. Remove the spring from the old inner reel (Fig. 6-1, Pg. 18).
4. Place the spring in the new inner reel.

NOTE: The spring must be assembled on the inner reel before reassembling the cutting attachment.

5. Insert the ends of the line through the eyelets in the outer spool (Fig. 6-8).
6. Place the new inner reel inside the outer spool. Push the inner reel and outer spool together. While holding the inner reel and outer spool, grasp the ends and pull firmly to release the line from the holding slots in the spool.
7. Hold the inner reel in place and install the Bump Knob by turning counterclockwise. Tighten securely.

Replacement Parts:

See Accessories / Replacement Parts on page 24.

CHECKING THE OIL LEVEL

! CAUTION

To prevent extensive engine wear and damage to the unit, always maintain the proper oil level in the crankcase. Never operate the unit with the oil level below the bottom of the dipstick.

The importance of checking and maintaining the proper oil level in the crankcase cannot be overemphasized. Check oil before each use:

1. Stop engine and allow oil to drain into the crankcase.
2. Place the unit on a flat, level surface to get a proper oil level reading.

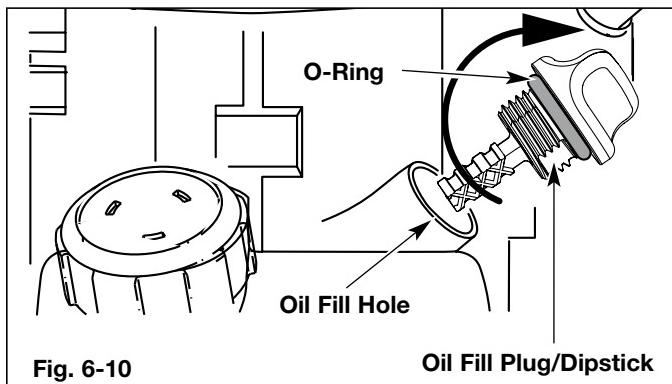


Fig. 6-10

3. Keep dirt, grass clippings, etc., out of the engine. Clean the area around the oil fill plug/dipstick before removing it.
4. Remove the oil fill plug/dipstick and wipe off oil. Reinsert it all the way back in.
5. Remove the oil fill plug/dipstick and check oil level. Oil should be up to the top of the dipstick (Fig. 6-9).
6. If the level is low, add a small amount of oil to the oil fill hole and recheck (Fig. 6-10). Repeat until the oil level reaches the top of the dipstick.

NOTE: Do not overfill the unit.

NOTE: Make sure the O-ring is in place on the oil fill plug/dipstick when checking and changing the oil (Fig. 6-10).

CHANGING THE OIL

For a new engine, change the oil after the first 10 hours of operation. Thereafter, change the oil after every 25 hours or before storing the unit for an extended period of time.

It is best to change the oil while the engine is still warm. The oil will flow freely and carry away more impurities.

! CAUTION

Wear gloves to prevent injury when handling the unit.

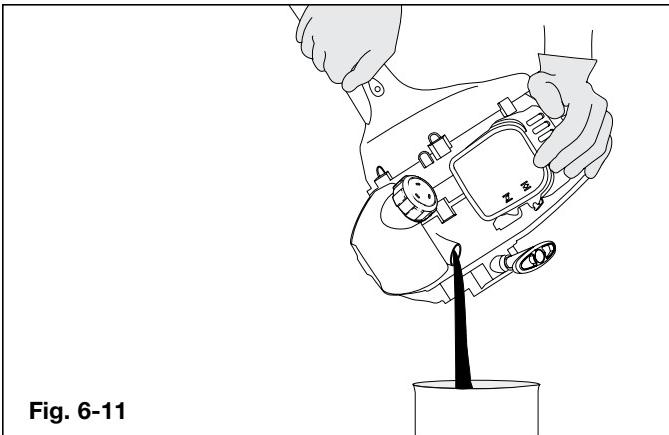


Fig. 6-11

1. Unplug spark plug boot to eliminate starting
2. Remove the oil fill plug/dipstick.
3. Pour the oil out of the oil fill hole and into a container by tipping the unit to a vertical position (Fig. 6-11). Allow ample time for complete drainage.
4. Wipe up any oil residue on the unit and clean up any oil that may have spilled. Dispose of the oil according to Federal, State and local regulations.
5. Refill the crankcase with 3.4 fluid oz (100 ml) of SAE 30 SF, SG, SH oil. Use the bottle and spout from initial use to measure the correct amount.
6. Replace the oil fill plug/dipstick.
7. Reconnect spark plug boot.

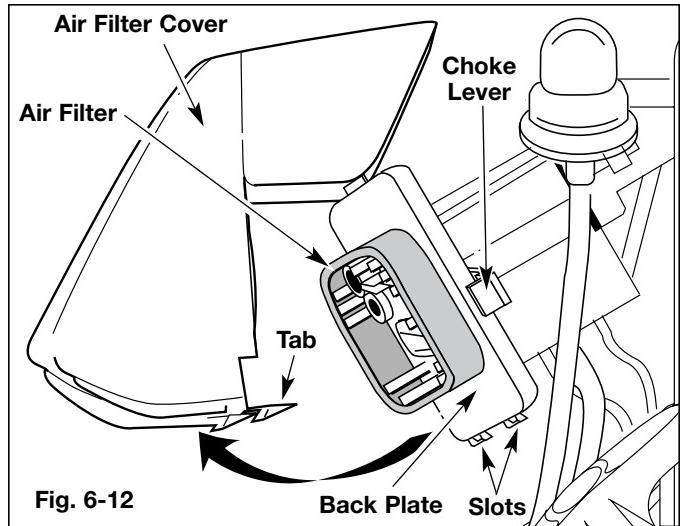


Fig. 6-12

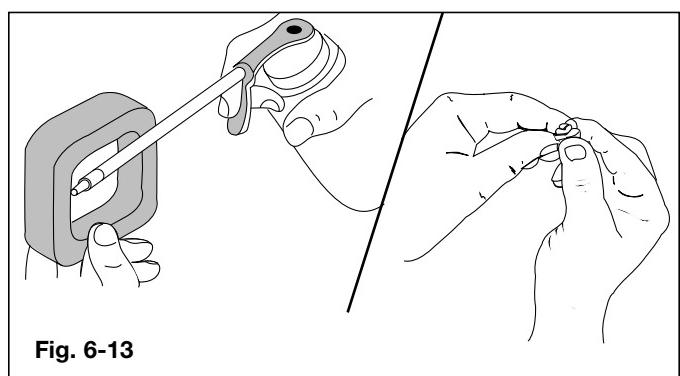


Fig. 6-13

AIR FILTER MAINTENANCE

Cleaning the Air Filter

! WARNING

To avoid serious personal injury, always turn your trimmer off and allow it to cool before you clean or do any maintenance on it.

Clean and re-oil the air filter every 10 hours of operation. It is an important item to maintain. Not maintaining the air filter will **VOID** the warranty.

1. Remove the air filter cover by pulling up the two tabs on the bottom back of the cover, then pull out and up (Fig. 6-12).
2. Remove the air filter (Fig. 6-12).
3. Wash the filter in detergent and water. Rinse the filter thoroughly and allow it to dry.
4. Apply enough clean SAE 30 motor oil to lightly coat the filter (Fig. 6-13).
5. Squeeze the filter to spread and remove excess oil (Fig. 6-13).
6. Reinstall the filter (Fig. 6-14).

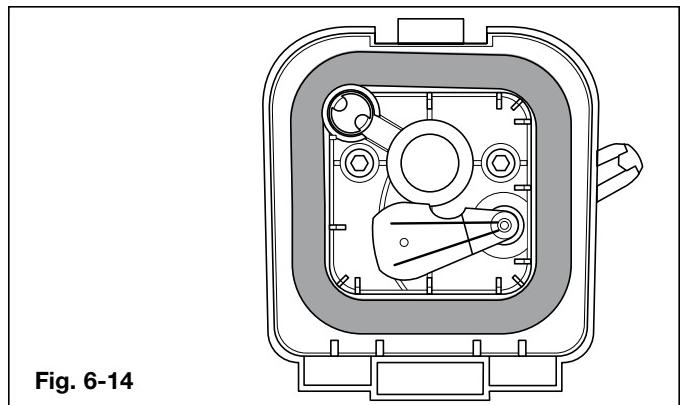


Fig. 6-14

7. Reinstall the air filter cover by positioning the notch on top of the air filter cover onto the tab at the top of the back plate (Fig. 6-12).
8. Using two fingers on either side of the air filter cover and back plate, squeeze together until the cover snaps into place (Fig. 6-12).

NOTE: If the unit is operated without the air filter, you will **VOID** the warranty.

Maintenance (continued)

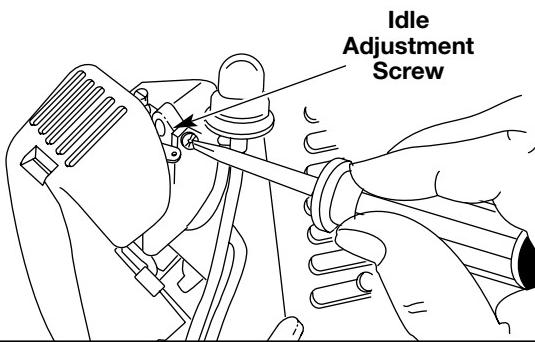


Fig. 6-15

CARBURETOR ADJUSTMENT

The idle speed of the engine is adjustable the screw next to the air filter cover (Fig 6-15).

NOTE: Careless adjustments can seriously damage your unit. An authorized service dealer should make carburetor adjustments.

Check Fuel

Old fuel is usually the main reason for the unit not running properly. Drain and refill the tank with clean, fresh unleaded fuel prior to doing any adjustments. See **Section 4, Oil and Fuel**, Recommended Fuel.

Clean Air Filter

The condition of the air filter is important to the operation of the unit. A dirty air filter will restrict air flow and change the air/fuel mixture. This is often mistaken for an out of adjustment carburetor. Check the condition of the air filter before adjusting the idle speed screw. See **Section 6, Maintenance**, Air Filter Maintenance.

Adjust Idle Speed Screw

! WARNING

The cutting attachment may be spinning during idle speed adjustment. Wear protective clothing and observe all safety instructions to prevent serious personal injury.

If after checking the fuel and cleaning the air filter the engine still will not idle, adjust the idle speed screw as follows.

1. Start the engine and let it run at a high idle for a minute to warm up.
2. Release the throttle trigger and let the engine idle. If the engine stops, insert a small phillips or flat blade screwdriver into the screw next to the air filter cover (Fig. 6-15). Turn the idle speed screw in, clockwise, 1/8 of a turn at a time (as needed) until the engine idles smoothly.

NOTE: The cutting attachment should not rotate when the engine idles.

3. If the cutting attachment rotates when the engine idles, turn the idle speed screw counterclockwise 1/8 of a turn at a time (as needed), to reduce idle speed.

Checking the fuel mixture, cleaning the air filter, and adjusting the idle speed screw should solve most engine problems.

If not and:

- The engine will not idle,
- The engine hesitates or stalls on acceleration,
- There is a loss of engine power,

have the carburetor adjusted by an authorized service dealer.

! WARNING

When the unit is turned off make sure the cutting attachment has stopped before the unit is set down to prevent serious personal injury.

ROCKER ARM CLEARANCE

NOTE: This requires some disassembly of the engine. If you feel unsure or unqualified to perform this, take the unit to an authorized service center.

Inspect the valve to rocker arm clearance every 50 hours of operation using a flat feeler gauge.

NOTE: The engine must be cold when checking or adjusting the valve clearance.

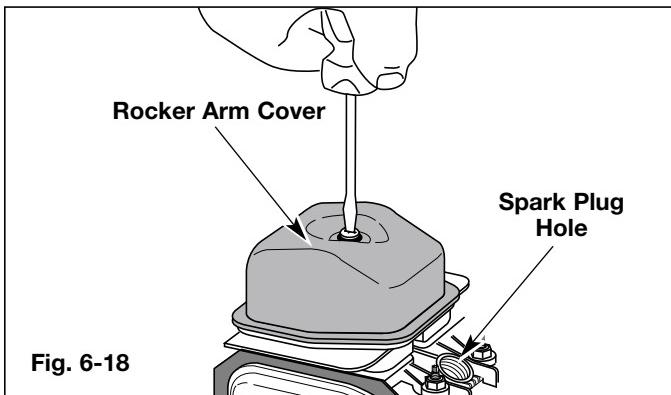
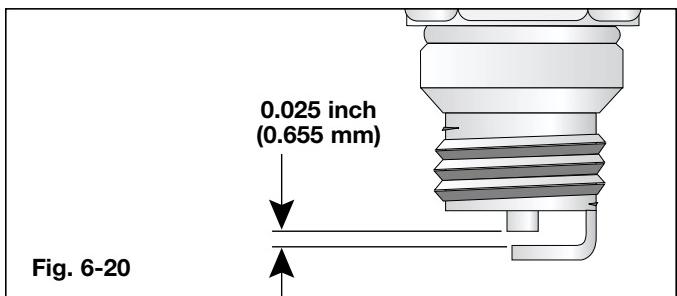
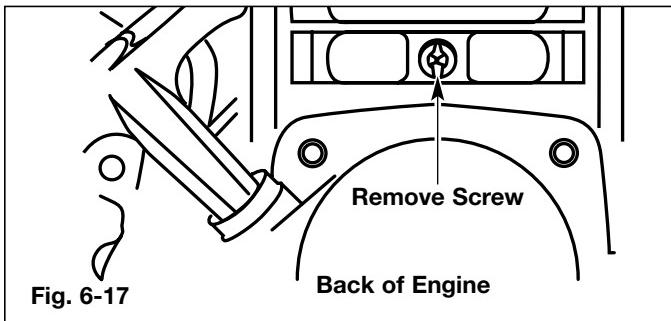
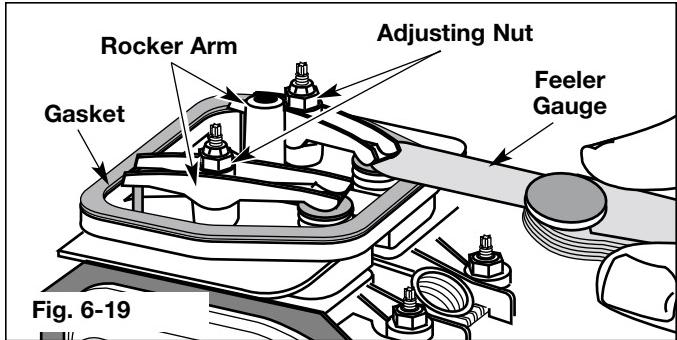
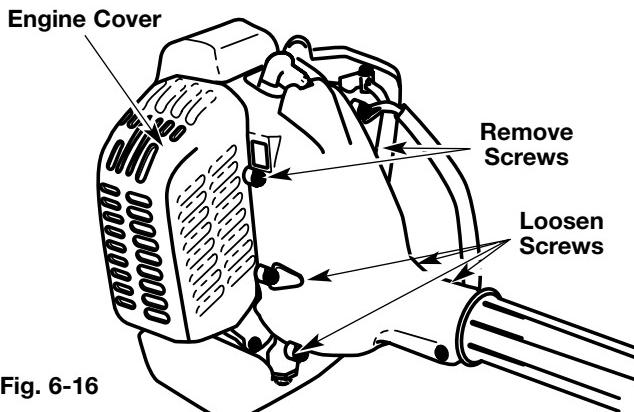
This task should be performed inside, in a clean, dust free area.

1. Loosen the four (4) screws shown in figure 6-16.
2. Remove the three (3) screws that secure the engine cover (Figs. 6-16 and 6-17).
3. Disconnect the spark plug wire.
4. Remove the spark plug
5. Remove the engine cover (Fig. 6-16).
6. Remove the screw holding the rocker arm cover with a large flat blade screwdriver or Torx T25 bit (Fig. 6-18). Remove the rocker arm cover, and gasket.
7. Pull the starter rope slowly to bring the piston to Top Dead Center.
 - While looking in the spark plug hole (Fig. 6-18), the piston is at the top of the stroke.
 - Both valves are closed.
 - Both rocker arms move freely.

If not, repeat this step.

8. Slide the feeler gauge between the rocker arm and the valve return spring. Measure the clearance between the valve stem and rocker arm (Fig 6-19). Do both intake and exhaust valves.

The recommended clearance for both intake and exhaust is .003-.006 inch (.076-.0152 mm). The feeler gauge should slide between the rocker arm and valve stem with a slight amount of resistance, without binding.



9. If the clearance is not within specification:
 - a. Turn the adjusting nut using a 5/16 inch (8 mm) wrench or nut driver (Fig. 6-19).

To increase clearance, turn the adjusting nut counterclockwise.

To decrease clearance, turn the adjusting nut clockwise.
 - b. Recheck both clearances, and adjust as necessary. Clearance for both intake and exhaust is .003-.006 inch (.076-.0152 mm)
10. Reinstall the rocker arm cover using a new gasket. Torque the screw to 20-30 in•lb (2.2-3.4 N•m).

11. Reinstall the engine cover. Check alignment of the cover before tightening the screws. Tighten screws.
12. Check the spark plug and reinstall. See **Replacing the Spark Plug**.
13. Replace the spark plug wire.

REPLACING THE SPARK PLUG

Use a Champion RDZ19H spark plug (or equivalent). The correct air gap is **0.025 inch (0.655 mm)**. Remove the plug after every 50 hours of operation and check its condition.

1. Stop the engine and allow it to cool. Grasp the plug wire firmly and pull the cap from the spark plug.
2. Clean dirt from around the spark plug. Remove the spark plug from the cylinder head by turning a 5/8 inch socket counterclockwise.
3. Replace cracked, fouled or dirty spark plug. Set the air gap at 0.025 inch (0.655 mm) using a feeler gauge (Fig. 6-20).

CAUTION

Do not sand blast, scrape, or clean electrodes. Grit in the engine could damage the cylinder.

4. Install a correctly gaped spark plug in the cylinder head. Tighten by turning the 5/8 inch socket clockwise until snug.
- If using a torque wrench torque to;
110-120 in•lb. (12.3-13.5 N•m).
- Do not over tighten.

Maintenance (continued)

ACCESSORIES/REPLACEMENT PARTS

Oil Fill Plug / Dipstick	181975
Spark Plug	180852
Spark Arrestor	182153
Replacement Line Cartridge	49U5001L063
Inner Reel Spring	610636
Bump Head Knob Assembly	180814
Fuel Cap	181083
4-Tooth Cutting Blade	49M5873L063
Blade Retaining Kit (includes lock nut & retaining washer)	180014
Shoulder Harness	682075

These replacement parts can be purchased from your local authorized dealer.

CLEANING

WARNING

To avoid serious personal injury, always turn your trimmer off and allow it to cool before you clean or do any maintenance on it.

Use a small brush to clean off the outside of the unit. Do not use strong detergents. Household cleaners that contain aromatic oils such as pine and lemon, and such as kerosene, can damage plastic housing or handle. Wipe off any moisture with a soft cloth.

STORAGE

- Never store the unit with gasoline in the tank where fumes may reach an open flame or spark.
- Allow the engine to cool before storing.
- Store the unit locked up to prevent unauthorized use or damage.
- Store the unit in a dry, well ventilated area.
- Store the unit out of the reach of children.

LONG TERM STORAGE

If the unit will be stored for an extended time,

1. Drain all gasoline from the gas tank into a container. Do not use gas that has been stored for more than 60 days. Dispose of the old gasoline in accordance to Federal, State, and Local regulations.
2. Start the engine and allow it to run until it stalls. This ensures that all gasoline has been drained from the carburetor.
3. Allow the engine to cool. Remove the spark plug and put 1 oz. (30 ml) of high quality motor oil into the cylinder. Pull the starter rope slowly to distribute the oil. Reinstall the spark plug.

NOTE: Remove the spark plug and drain all of the oil from the cylinder before attempting to start the trimmer after storage.

4. Thoroughly clean the unit and inspect for any loose or damaged parts. Repair or replace damaged parts and tighten loose screws, nuts or bolts. The unit is ready for storage.

TRANSPORTING

- Allow the engine to cool before transporting.
- Secure the unit while transporting.
- Drain the gas tank before transporting.
- Tighten gas cap before transporting.

Troubleshooting

ENGINE WILL NOT START

CAUSE

On/Off Stop Control is in STOP position
Empty fuel tank
Primer bulb wasn't pressed enough
Engine flooded
Old Gasoline
Fouled spark plug

ACTION

Turn On/Off Stop Control to START
Fill fuel tank
Press primer bulb fully and slowly 5-7 times
Use starting procedure with choke lever in the RUN position, Pg. 14
Drain fuel tank / Add fresh Gasoline
Replace or clean the spark plug

ENGINE WILL NOT IDLE

CAUSE

Air Filter is Plugged
Old Gasoline
Improper carburetor adjustment

ACTION

Replace or clean the air filter
Drain fuel tank / Add fresh Gasoline
Adjust per instruction Pg. 22

ENGINE WILL NOT ACCELERATE

CAUSE

Old Gasoline
Improper carburetor adjustment
Cutting attachment bound with grass
Dirty air filter

ACTION

Drain fuel tank / Add fresh Gasoline
Take to an authorized service dealer for carburetor adjustment
Stop the engine and clean the cutting attachment
Clean or replace the air filter

ENGINE LACKS POWER OR STALLS WHEN CUTTING

CAUSE

Old Gasoline
Improper carburetor adjustment

ACTION

Drain fuel tank / Add fresh Gasoline
Take to an authorized service dealer for carburetor adjustment

CUTTING ATTACHMENT WILL NOT ADVANCE LINE

CAUSE

Cutting attachment bound with grass
Cutting attachment out of line
Inner reel bound up
Cutting head dirty
Line welded
Line twisted when refilled
Not enough line is exposed

ACTION

Stop the engine and clean cutting attachment
Refill with new line
Replace the inner reel
Clean inner reel and outer spool
Disassemble, remove the welded section and rewind the line
Disassemble and rewind the line
Push the Bump Knob and pull out line until 4 inches (102 mm) of line is outside of the cutting attachment

Section 8

Specifications

ENGINE

Engine Type	Air-Cooled, 4-Cycle
Displacement	1.6 cu. in. (26.2 cc)
Clutch Type	Centrifugal
Idle Speed RPM	2,600-3,600 rpm
Operating RPM (Trimmer)	7,700-8,600 rpm
Operating RPM (Brush cutter)	8,200-10,000 rpm
Ignition Type	Electronic
On/Off Stop Control	Toggle Switch
Valve clearance (intake and exhaust)003-.006 in. (.076-.0152 mm)
Spark Plug Gap	0.025 inch (0.655 mm)
Lubrication	SAE 30 Oil
Crankcase Oil Capacity	3.4 oz (100 ml)
Fuel	Unleaded
Carburetor	Diaphragm, All-Position
Starter	Auto Rewind
Muffler	Baffled with Guard
Throttle	Manual Spring Return
Fuel Tank Capacity	20 oz (591 ml)

DRIVE SHAFT & CUTTING ATTACHMENT

Drive Shaft Housing	Aluminum Tube
Throttle Control	Finger-Tip Trigger
Unit Weight (No Fuel, with J-handle, Cutting attachment shield and Cutting attachment)	13.5 lbs (6.13 kg)
Cutting Mechanism	4-Tooth Cutting Blade, Dual String Cutting Head
Line Spool	Bump Line Releaser
Line Spool Diameter	4 inches (101.6 mm)
Trimming Line Diameter	0.095 inches (2.41 mm)
Cutting Path Diameter	18 inches (44.0 cm)
Cutting Path Diameter, Cutting Blade	8 Inches (204 mm)
Gear Box Ratio	1.23:1
Shoulder Harness	Single Quick-Snap

Warranty

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board and MTD Southwest Inc (MTD), are pleased to explain the emission control system warranty on your 2000 and later small off-road engine. In California, new small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. MTD must warrant the emission control system on your small off-road engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

Your emission control system may include parts such as the carburetor or fuel injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, MTD will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

The 2000 and later small off-road engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by MTD.

OWNER'S WARRANTY RESPONSIBILITIES:

- As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. MTD recommends that you retain all receipts covering maintenance on your small off-road engine, but MTD cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the small off-road engine owner, you should however be aware that MTD may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- You are responsible for presenting your small off-road engine to a MTD Authorized Service Center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should call 1-800-345-8746.

MANUFACTURER'S WARRANTY COVERAGE:

- The warranty period begins on the date the engine or equipment is delivered to the retail purchaser.
- The manufacturer warrants to the initial owner and each subsequent purchaser, that the engine is free from defects in material and workmanship which cause the failure of a warranted part for a period of two years.
- Repair or replacement of warranted part will be performed at no charge to the owner at an Authorized MTD Service Center. For the nearest location, please contact MTD at: 1-800-345-8746.
- Any warranted part which is not scheduled for replacement, as required maintenance which is scheduled only for regular inspection to the effect of "Repair or replace as necessary" is warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance will be warranted for the period of time up to the first scheduled replacement point for that part.
- The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at an Authorized MTD Service Center.
- The manufacturer is liable for damages to other engine components caused by the failure of a warranted part still under warranty.
- Failures caused by abuse, neglect or improper maintenance are not covered under warranty.
- The use of add-on or modified parts can be grounds for disallowing a warranty claim. The manufacturer is not liable to cover failures or warranted parts caused by the use of add-on or modified parts.
- In order to file a claim, go to your nearest Authorized MTD Service Center. Warranty services or repairs will be provided at all Authorized MTD Service Centers.
- Any manufacturer approved replacement part may be used in the performance of any warranty maintenance or repair of emission related parts and will be provided without charge to the owner. Any replacement part that is equivalent in performance or durability may be used in non-warranty maintenance or repair and will not reduce the warranty obligations of the manufacturer.
- The following components are included in the emission related warranty of the engine, air filter, carburetor, primer, fuel lines, fuel pick up/fuel filter, ignition module, spark plug and muffler.

MANUFACTURER'S LIMITED WARRANTY FOR:



The limited warranty set forth below is given by MTD SOUTHWEST INC ("MTD") with respect with new merchandise purchased and used in the United States, its possessions and territories.

MTD warrants this product against defects in material and workmanship for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in material or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water or damage because of other peril or natural disaster. Damage resulting from the installation or use of any accessory or attachment not approved by MTD for use with the product(s) covered by this manual will void your warranty as to any resulting damage. This warranty is limited to ninety (90) days from the date of original retail purchase for any MTD product that is used for rental or commercial purposes, or any other income-producing purpose.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE THROUGH YOUR LOCAL AUTHORIZED SERVICE DEALER. To locate the dealer in your area, please check for a listing in the Yellow Pages or contact the Customer Service Department of MTD SOUTHWEST INC by calling 1-800-345-8746 or writing to 550 N. 54th Street, Chandler, Arizona 85226 or if in Canada call 1-800-668-1238. No product returned directly to the factory will be accepted unless prior written permission has been extended by the Customer Service Department of MTD SOUTHWEST INC.

This limited warranty does not provide coverage in the following cases:

- A. Tune-ups - Spark Plugs, Carburetor Adjustments, Filters
- B. Wear items - Bump Knobs, Outer Spools, Cutting Line, Inner Reels, Starter Pulley, Starter Ropes, Drive Belts
- C. MTD does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD's authorized channels of export distribution.

MTD reserves the right to change or improve the design of any TROY-BILT Product without assuming any obligation to modify any product previously manufactured.

No implied warranty, including any implied warranty of merchantability or fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty or guaranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product shall bind MTD. During the period of the Warranty, the exclusive remedy is repair or replacement of the product as set forth above. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

The provisions as set forth in this Warranty provide the sole and exclusive remedy arising from the sales. MTD shall not be liable for incidental or consequential loss or damages including, without limitation, expenses incurred for substitute or replacement lawn care services, for transportation or for related expenses, or for rental expenses to temporarily replace a warranted product. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. Alteration of the safety features of the product shall void this Warranty. You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the use or misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser, original lessee or the person for whom it was purchased as a gift.

How State Law Relates to this Warranty: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

To locate your nearest service dealer dial
1-800-345-8746 in the United States or
1-800-668-1238 in Canada.

MTD Southwest Inc
550 N. 54th Street
Chandler, AZ 85226 U.S.A.